The glycemic index and glycemic load are a weak form of low-carb strategy. The logical problems and the limited experimental proof of their efficacy make their use questionable as a primary strategy. The glycemic index and glycemic load are a weak form of low-carb strategy. They might, however, be of some use, since they still encourage carbohydrate restriction. The glycemic index was an important idea. It followed the same principle as low-carbohydrate diets, and was seemingly of practical value. The intention of the glycemic index was to address the experimental effect of carbohydrate on blood glucose. The glycemic index addresses the old idea, pretty much a dogma when I was in school, that simple sugars would cause a rapid rise in blood glucose, but complex carbohydrate—which at that time still meant polysaccharides (starch)—would not. The idea was questioned at some point, however, and it turns out that when you actually measure the effect of foods on blood glucose, it's not easily predictable—that is, it must be determined experimentally.

Glycemic index (GI) is precisely defined as the area under the blood glucose time curve during the first two hours after consumption of 50 grams of carbohydrate-containing food. In other words, it is the total amount of blood glucose for a fixed time period after ingestion.

Whatever its promise, low-GI diets have evolved to be a politically correct form of carbohydrate restriction, and it is questionable if they have any value at all. Eric Westman, who has experience with both kinds of diets, put it well: "if low-GI is good, why not no-GI?" In comparison to simply reducing carbohydrate, low-GI strategies are complicated and require looking up and calculating values, a feature that might be appealing to some, but is probably annoying to most. The difference between intensive variables, such as caloric density, and extensive variables, such as total carbohydrate eaten, was brought out at the beginning of the quiz.

Two bowls of cereal have the same GI as one. If there is not much carbohydrate (or really much glucose) in a food, it will have a low GI, but it could still have a large effect if you consume a lot. The glycemic load attempts to correct this problem. The glycemic load (GL) is defined as the GI multiplied by the grams of carbohydrate in a sample of a particular food. Obviously, GL is still an intensive variable. You still have to know how much is consumed. There is also the overall character of using GL: a slice of white bread has a high GI. The GI will go down if you smear a tablespoon of butter on the bread. It will go down still further if you add two tablespoons of butter.

If you could somehow butter infinitely, until for all intents and purposes you have pure butter, you would have a GI = 0, which is probably not helpful for those who want to use the GI as a guide to eating.

One final ambiguity: GI measures blood glucose. Fructose, a sugar of great current interest (because it is 50 percent of sucrose and slightly more than 50 percent of high-fructose corn syrup), is partially converted to glucose in two hours, which is why the GI of fructose is 20 and not zero. In fact, more is converted after that time, severely compromising any assertion about the differences in effect of the two sugars. Sucrose has a GI of 70, which is roughly the average of glucose and fructose. Thus, ice cream has a lower GI than potatoes. Yet now we can't recommend ice cream because of the high fructose. Lower GI or lower fructose? How can you do both without saying "low-carbohydrate" out loud? This tangled web is woven out of the failure to face scientific facts. This aspect of the nutritional crisis is probably best addressed by ignoring glycemic index altogether. The work of Volek and Forsythe provides a good reason to focus on the carbohydrate content of your diet.

What about the type of carbohydrate, though? In other words, is glycemic index important? Is fructose as bad as they say? Consistent with the small perturbation caused by fructose compared to glucose, as shown in the previous chapter, we have a good general principle: no change in the type of macronutrient—carbohydrate or fat—will ever have the same kind of effect as replacing carbohydrate across the board with fat.